CHAPTER 10
INTERVALS

An *interval* is the difference in pitch between two tones. Intervals are named according to the number of letter names, or the number of successive staff degrees, encompassed by the interval.

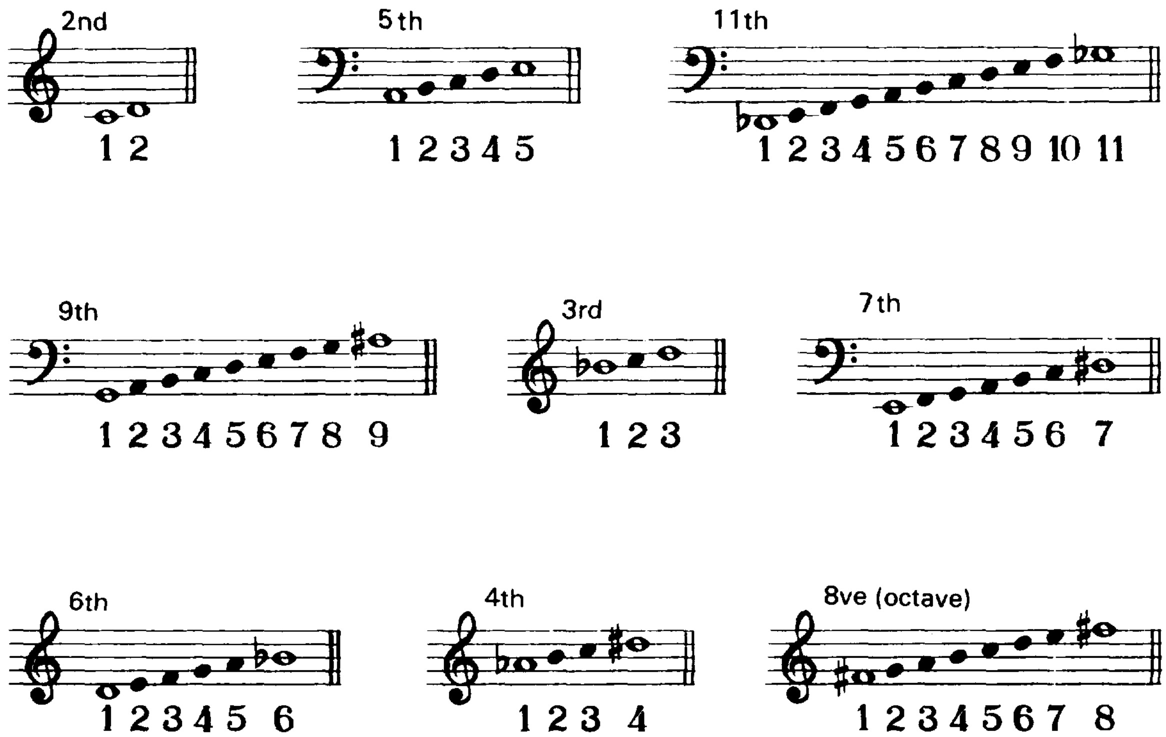


Figure 10.1: Names of Intervals.

When interval tones sound simultaneously, the interval is a *harmonic interval.* When interval tones sound in succession, the interval is a *melodic interval.*

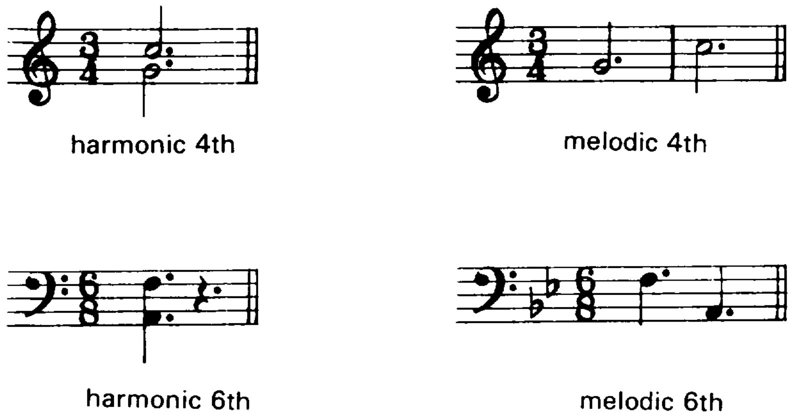


Figure 10.2: Harmonic and Melodic Intervals.

When interval tones encompass an octave or less, the interval is a *simple interval.* When interval tones encompass a ninth or more, the interval is a *compound interval.*

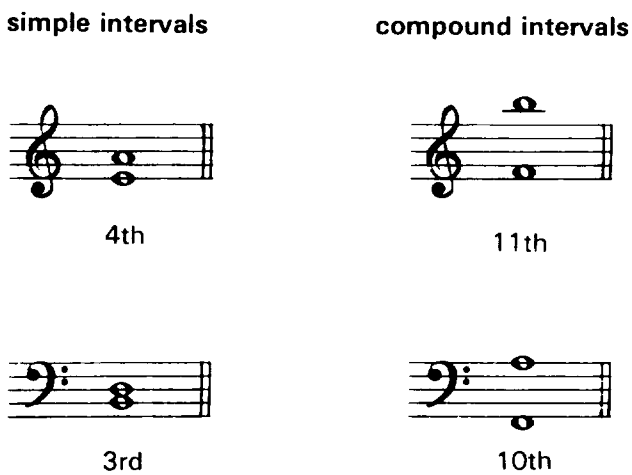


Figure 10.3: Simple and Compound Intervals.

QUALITIES OF INTERVALS

To identify a specific interval both its name and quality must be stated. The quality of an interval may be described by one of five terms: *perfect, major, minor, augmented, or diminished.*

Perfect Intervals

A *perfect prime* (P1) consists of two notes of the same pitch on the same staff degree. A *perfect fourth* (P4), a *perfect fifth* (P5), and a *perfect octave* (P8) consist of the intervals formed between the tonic and the subdominant, dominant, and octave of a major or minor scale.

The perfect prime contains no half steps; the perfect fourth contains five half steps; the perfect fifth contains seven half steps; and the perfect octave contains twelve half steps.

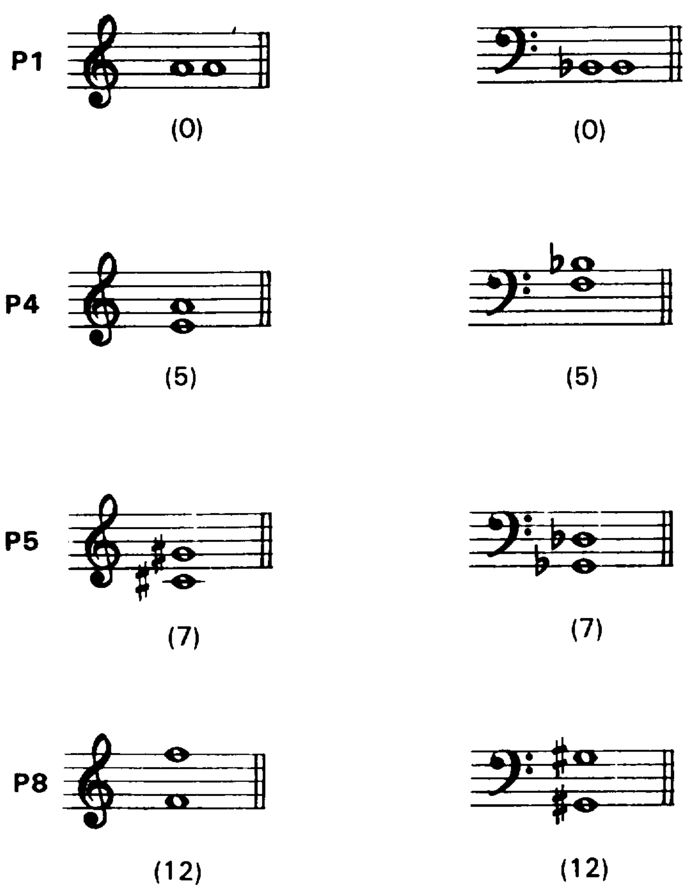


Figure 10.4: Perfect Intervals.

Major Intervals

A *major second* (Maj 2), *major third* (Maj 3), *major sixth* (Maj 6), and *major seventh* (Maj 7) consist of the intervals formed between the tonic and supertonic, mediant, submediant, and leading tone of a major scale.

The major second contains two half steps; the major third contains four half steps; the major sixth contains nine half steps; and the major seventh contains eleven half steps.

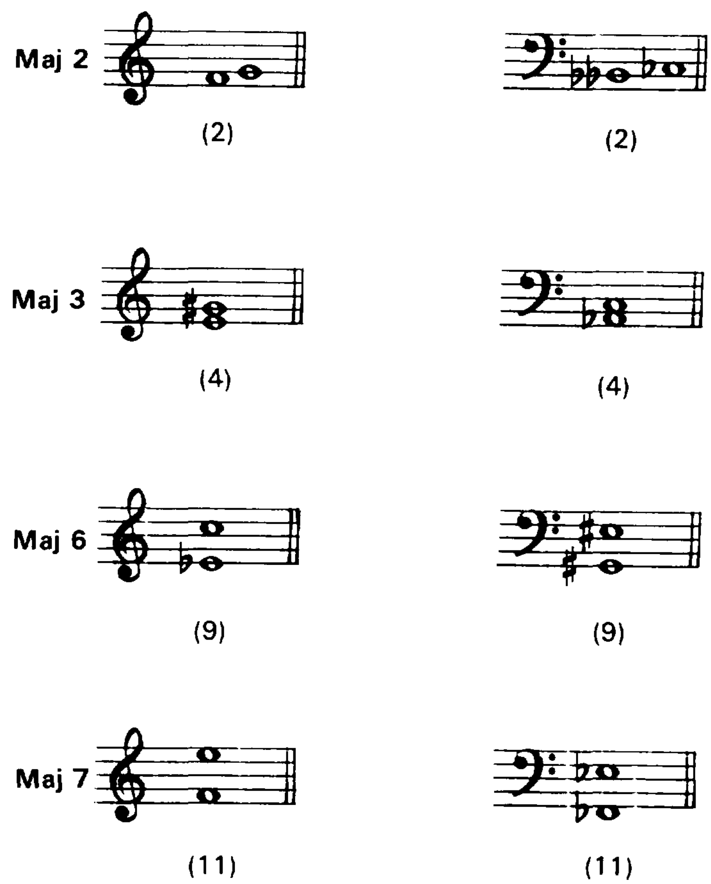


Figure 10.5: Major Intervals.

Minor Intervals

A major interval made smaller by a half step becomes minor. A *minor 2nd* (min 2), *minor 3rd* (min 3), *minor 6th* (min 6), and *minor 7th* (min 7) consist of the intervals formed between the tonic and lowered supertonic (♭2), mediant (♭3), and submediant (♭6) of a major scale, and between the tonic and subtonic (♭7).

The minor second contains one half step; the minor third contains three half steps; the minor sixth contains eight half steps; and the minor seventh contains ten half steps.

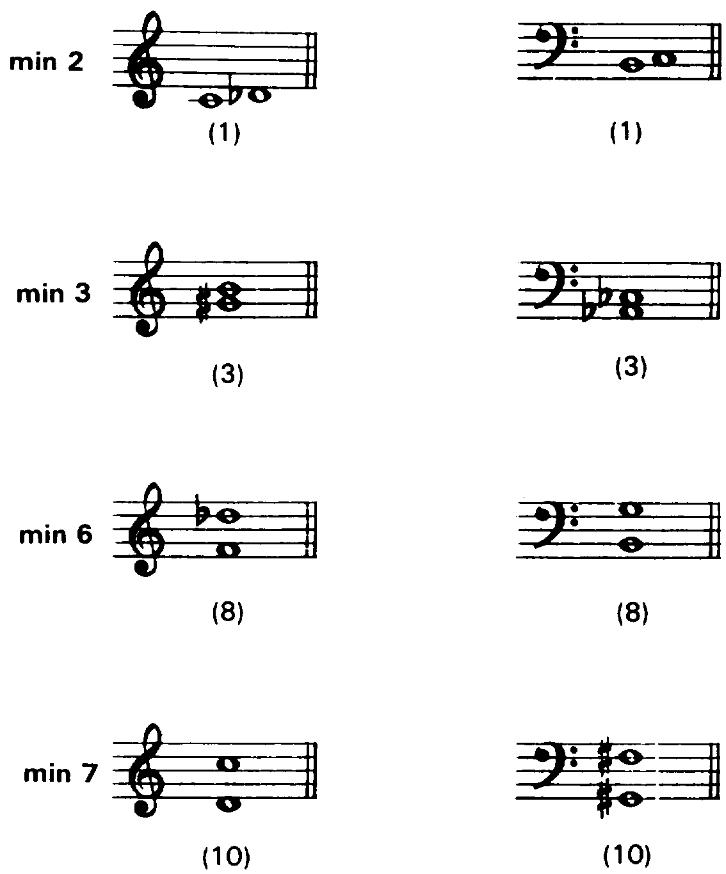


Figure 10.6: Minor Intervals.

Augmenting Perfect Intervals

A perfect interval made greater by a half step becomes augmented. The *augmented prime*(Aug 1) contains one half step; the *augmented fourth* (Aug 4) contains six half steps; the *augmented fifth* (Aug 5) contains eight half steps; and the *augmented octave* (Aug 8) contains thirteen half steps.

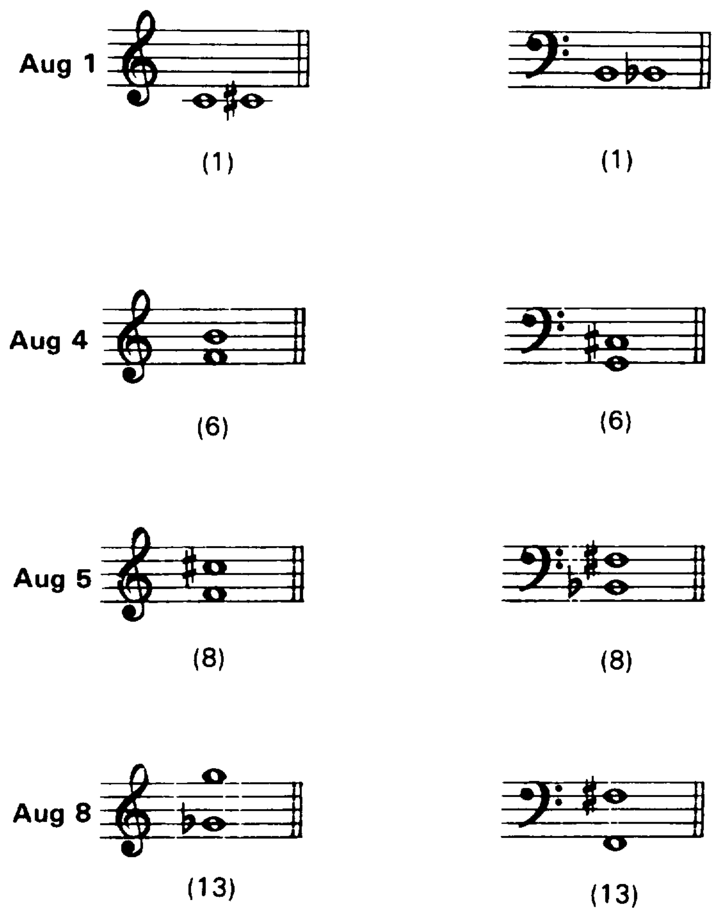


Figure 10.7: Augmented Intervals from Perfect Intervals.

Diminishing Perfect Intervals

A perfect interval made smaller by a half step becomes diminished. The *diminished fourth* (dim 4) contains four half steps; the *diminished fifth* (dim 5) contains six half steps; and the *diminished octave* (dim 8) contains eleven half steps. There is no diminished prime because it is impossible to make a prime smaller.

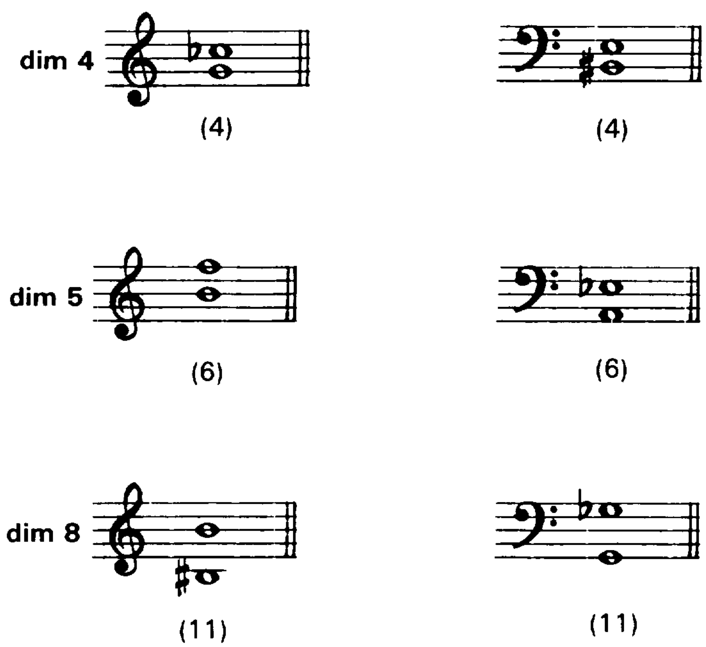


Figure 10.8: Diminished Intervals from Perfect Intervals.

Augmenting Major Intervals

A major interval made greater by a half step becomes augmented. The *augmented second* (Aug 2) contains three half steps; the *augmented third* (Aug 3) contains five half steps; the *augmented sixth* (Aug 6) contains ten half steps; and the *augmented seventh* (Aug 7) contains twelve half steps.

Minor intervals made greater by a half step become major; major intervals made greater by a half step become augmented; therefore, a minor interval made greater by a whole step becomes augmented.

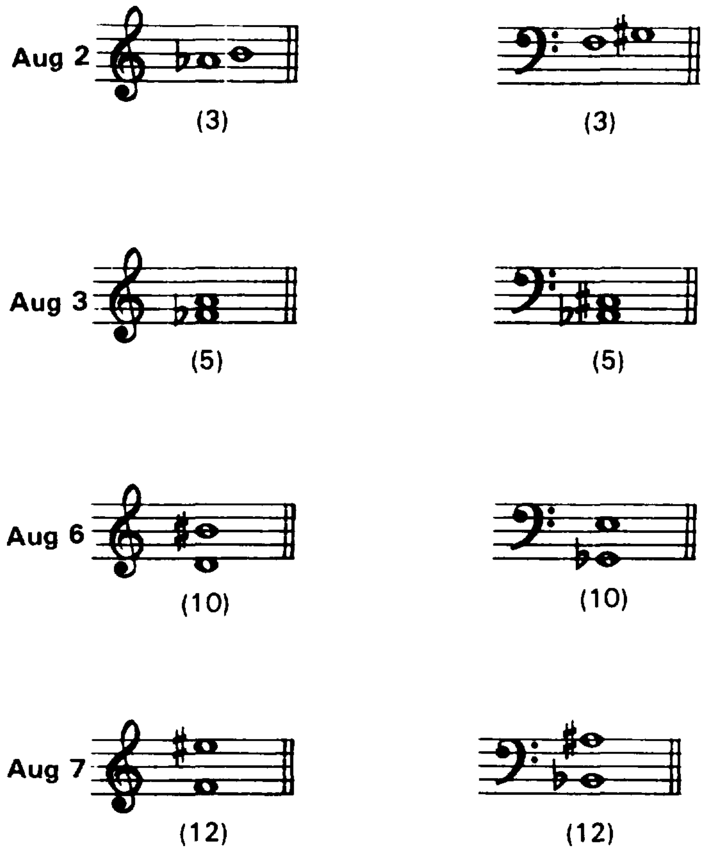


Figure 10.9: Augmented Intervals from Major Intervals.

Diminishing Minor Intervals

A minor interval made smaller by a half step becomes diminished. The *diminished second* (dim 2) contains no half steps because the two pitches sound the same; the *diminished third* (dim 3) contains two half steps; the *diminished sixth* (dim 6) contains seven half steps; and the *diminished seventh* (dim 7) contains nine half steps.

Major intervals made smaller by a half step become minor; minor intervals made smaller by a half step become diminished; therefore, a major interval made smaller by a whole step becomes diminished.

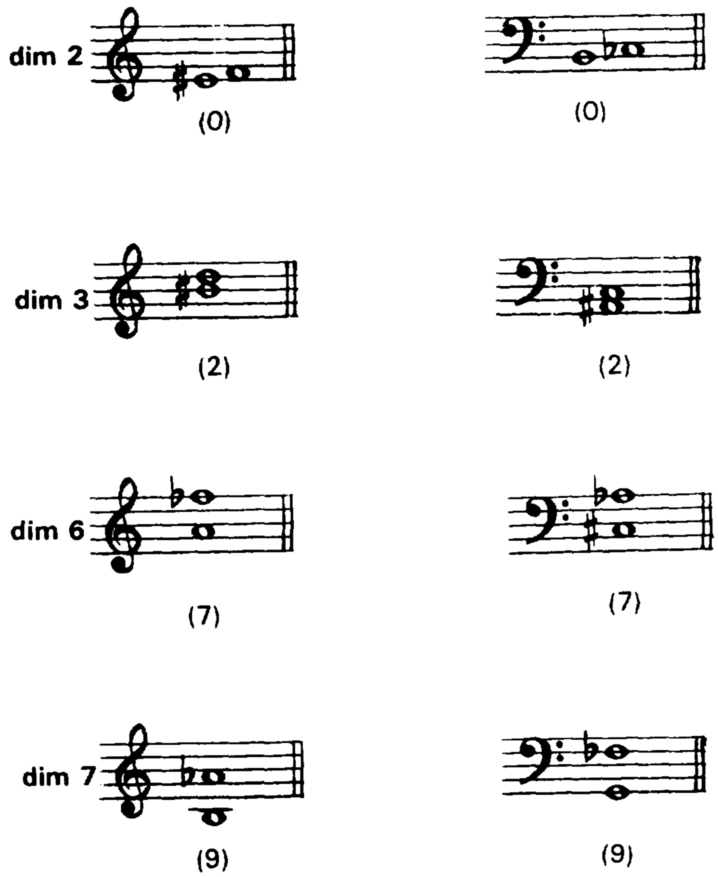


Figure 10.10: Diminished Intervals from Minor Intervals.

INTERVAL QUALITY RELATIONSHIPS

The following diagram illustrates the relationships of various intervals when moved by half steps.

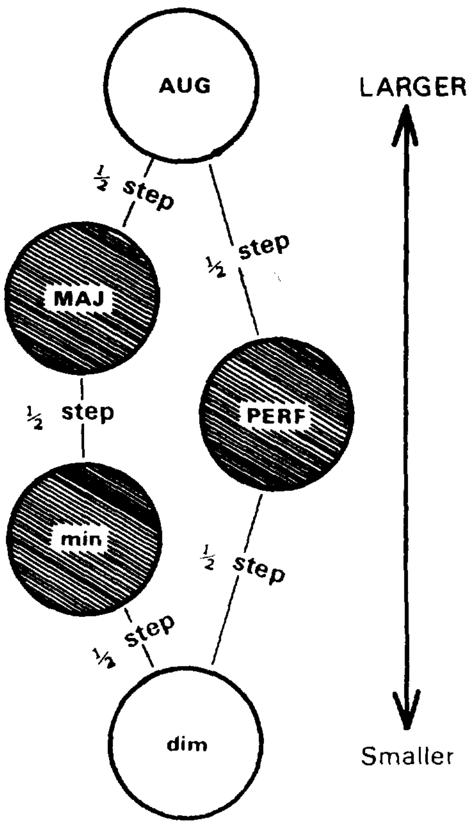


Figure 10.11: Interval Quality Relationships.

ENHARMONIC INTERVALS

Intervals that have different names but sound the same are *enharmonic intervals.* Enharmonic intervals will always have the same number of half steps but different notation. For example, the Aug 5 and min 6 shown in Fig. 10.12 are enharmonic intervals. Both intervals contain eight half steps.

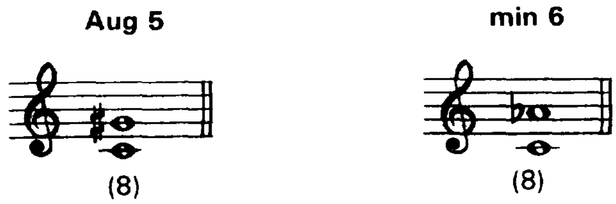


Figure 10.12: Enharmonic Intervals.

INVERSION OF SIMPLE INTERVALS

Inversion is a change in the relative position of the notes in a simple interval. When the upper note in a simple interval becomes the lower note, or the lower note becomes the upper note, the interval has been inverted. Inversion is accomplished by moving the lower note up an octave or the upper note down an octave.

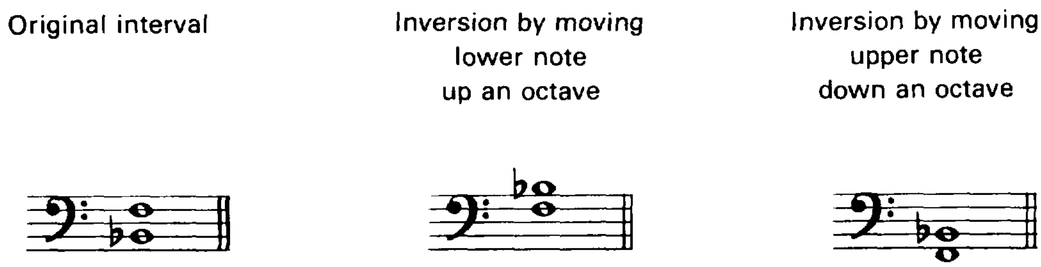


Figure 10.13: Inversion of Simple Interval (P5).

Three simple intervals do not invert: the perfect prime, perfect octave, and augmented octave.

The perfect prime will not invert because there is no upper or lower note.

The perfect octave will not invert because this would create a perfect prime, which has no upper or lower note.

The augmented octave will not invert because the upper note would remain the upper note and the lower note would remain the lower note.

The names of inverted simple intervals are predictable. The sum of a simple interval and it's inversion is always ***NINE:***

1 becomes 8 (when invertable)

2 becomes 7

3 becomes 6

4 becomes 5

5 becomes 4

6 becomes 3

7 becomes 2

8 becomes 1 (when invertable)

The qualities of inverted simple intervals are also predictable:

perfect remains perfect (when invertable)

major becomes minor

minor becomes major

augmented becomes diminished

diminished becomes augmented

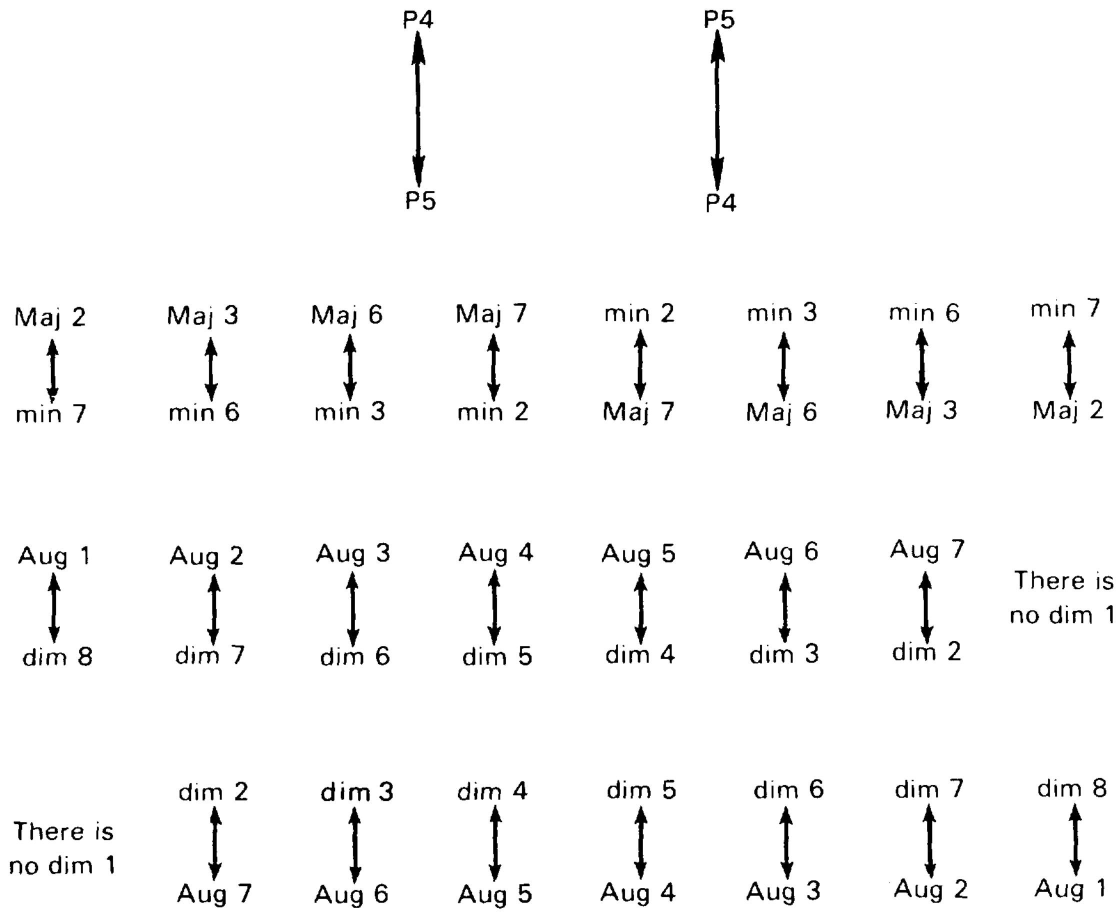


Figure 10.14: Simple Interval Inversions.

COMPOUNDING AND REDUCING INTERVALS

Compounding and *reducing* intervals are other methods of changing the relative position of the notes in an interval. Compounding a simple interval is accomplished by moving the upper note up an octave or the lower note down an octave. Moving the upper note down an octave or the lower note up an octave reduces a compound interval. Compounding intervals may continue indefinitely, but reduction can continue only until the interval becomes simple, then inversion rules control further movement. When compounding or reducing intervals, the name of the interval changes while the quality remains the same.

Compounding Intervals

When compounding a simple or compound interval, the number ***SEVEN*** is *added* to the name of the interval for each octave displacement. The quality of the interval remains the same.

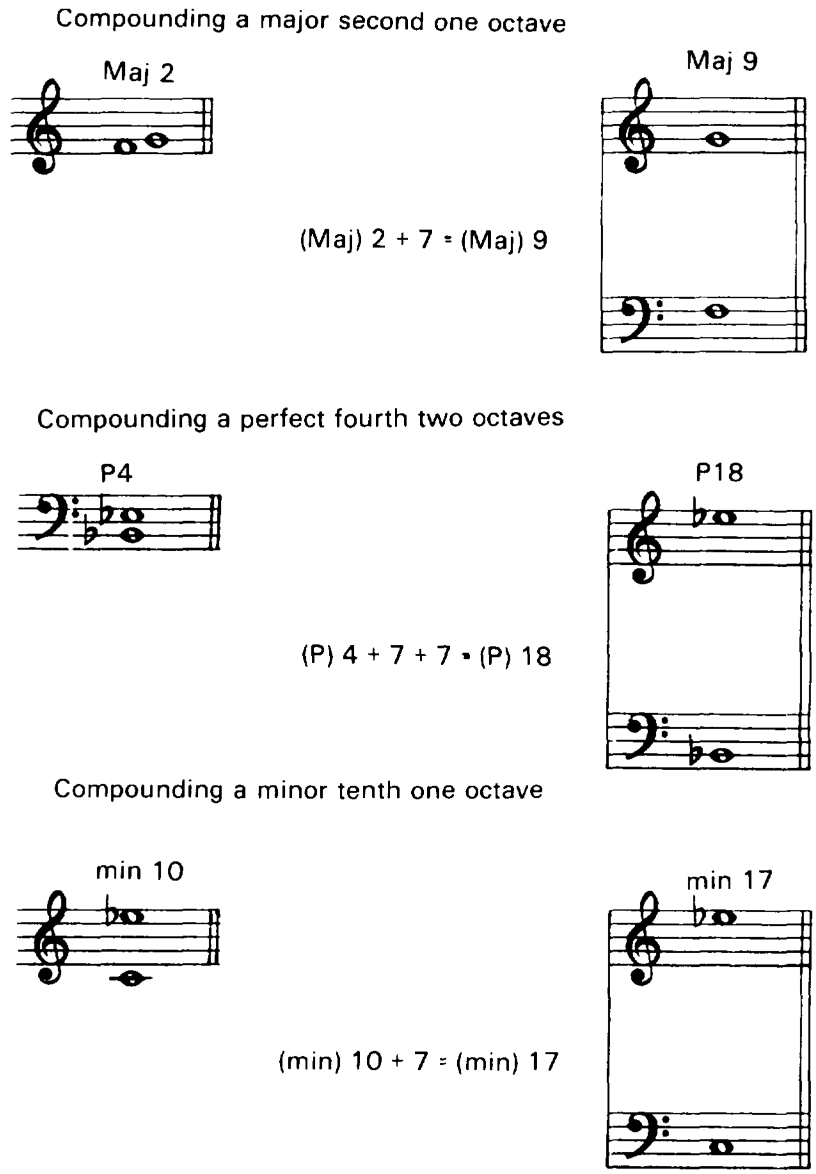


Figure 10.15: Compounding Intervals.

The perfect prime, which is not inverted, may be compounded. The perfect prime compounds to a perfect octave (P1+7 equals P8).

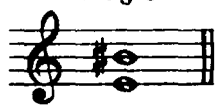
Reducing Intervals

When reducing a compound interval, the number ***SEVEN*** is *subtracted* from the name of the interval for each octave displacement. The quality of the interval remains the same.

Reducing an augmented twelfth by one octave

Aug 12

Aug 5



(Aug) 12 - 7 = (Aug) 5

Reducing a major sixteenth by two octaves

Maj 16

Maj 2

(Maj) 16 - 7 - 7 = (Maj) 2

Reducing a diminished thirteenth by one octave

dim 13

dim 6

(dim) 13 - 7 = (dim) 6

Figure 10.16: Reducing Intervals.

Two simple intervals may be reduced. The augmented octave reduces to an augmented prime (Aug 8 - 7 equals Aug 1) and the perfect octave reduces to a perfect prime (P8 - 7 equals P1).

CONSONANT AND DISSONANT INTERVALS

The basic sound of intervals may be generally described as *consonant* or *dissonant*. Consonant intervals tend to remain stable. Dissonant intervals tend to be unstable, requiring movement to a consonance. Perfect primes, thirds, perfect fifths, sixths, and perfect octaves are generally consonant intervals. Seconds, perfect fourths, sevenths, augmented, and diminished intervals are generally dissonant intervals.

Consonant Intervals	**Dissonant Intervals**
P1, P5, P8,	P4,
Maj 3, Maj 6	Maj 2, Maj 7
min 3, min 6	min 2, min 7
	All augmented intervals
	All diminished intervals

Figure 10.17: Consonant and Dissonant Intervals.

Although the minor third (3 half steps) and the augmented second (3 half steps) are enharmonic, one is classified as a consonance, the other as a dissonance. This is true of several enharmonic intervals (Maj 3 and dim 4, dim 2 and P1, dim 6 and P5, Aug 5 and min 6, etc.). The musical context determines consonance and dissonance when the intervals are enharmonic.

The diminished fifth (dim 5) and augmented fourth (Aug 4) contain six half steps, are dissonant, and are enharmonic. Since both these intervals contain three whole steps, both are commonly referred to as the *tritone* (abbreviated TT).

DIATONIC AND CHROMATIC INTERVALS

Pitches that belong to a scale or key are called *diatonic*. Pitches foreign to a scale or key are called *chromatic*. The pitch *C* is diatonic to the keys of *C* major (tonic), *e♭* melodic minor ascending (raised submediant), and *b♭* minor (supertonic). However, the pitch *C* is chromatic (not diatonic) to the keys of *D* major (subtonic), *G* lydian (lowered subdominant), and *a♭* minor (raised mediant).

Intervals are diatonic when both the upper and lower notes of the interval are found in the key. Intervals are chromatic when one or both notes of the interval are foreign to the key. The simple interval formed by the pitches *G* up to *B*♭ is a diatonic interval in *B*♭ Major, *E*♭ mixolydian, and *c* natural minor, but it is a chromatic interval in *G*♭ major, *e* minor, and *D* lydian.

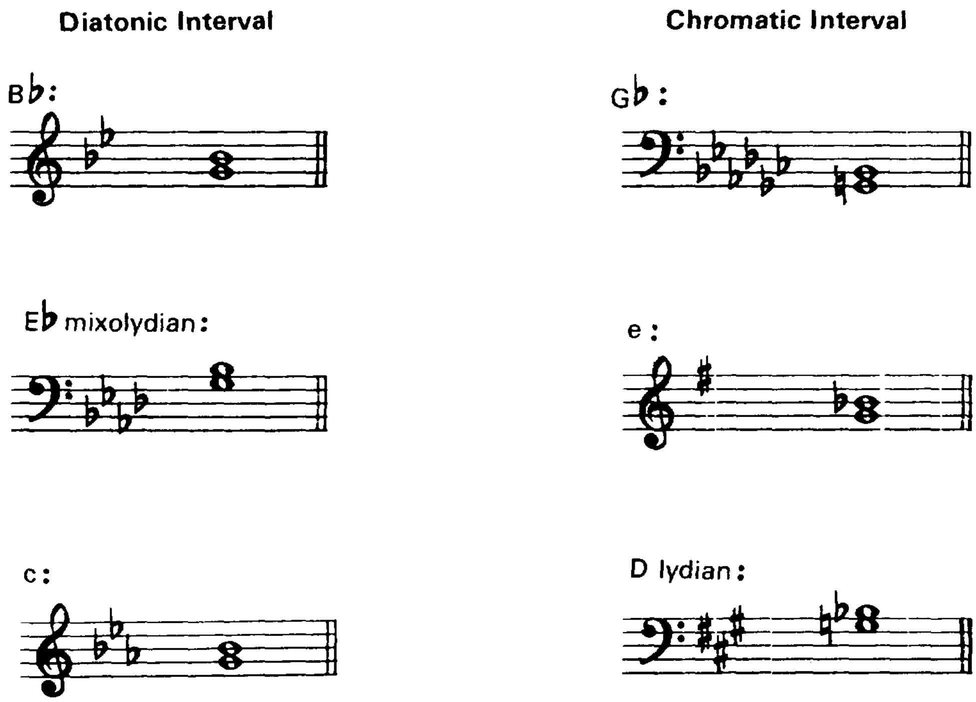


Figure 10.18: Diatonic and Chromatic Intervals.